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March 24, 2000

IT-MC-CK14-0004
Project No. 805593

Mr. Ellis Pope
U.S. Army Corps of Engineers
Mobile District
Attn.: CESAM-EN-GE (Pope)
109 Saint Joseph Street
Mobile, AL 36602

Contract: **Contract No. DACA21-96-D-0018/CK14**
Fort McClellan, Alabama

Subject: **Final Site-Specific Work Plan for the Lead-Based Paint Risk Assessment**

Dear Mr. Pope:

I am enclosing two copies of the final work plan for your review. This final work plan describes the field activities we propose for conducting the Lead-Based Paint Risk Assessment at Fort McClellan.

I have distributed copies of this document according to the distribution list indicated below. If you have questions, or need further information, please contact me at (770) 663-1429 or Steve Moran at (865) 694-7361.

Sincerely,

Jeanne A. Yacoub, P.E.
Project Manager

Attachments

Distribution: Lisa Kingsbury, Fort McClellan (4 copies)

bc: S. Moran
J. Tarr (2 copies)
M. Vollo
G. Wyrwa
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Central Files (1 bound & original document)

Final

Lead-Based Paint Risk Assessment

Field Sampling Plan and Site-Specific Safety and Health Plan Attachments

Fort McClellan
Calhoun County, Alabama

Task Order CK14
Contract No. DACA21-96-D-0018
IT Project No. 805593

March 2000

Revision 1

Final

Lead-Based Paint Risk Assessment

Field Sampling Plan Attachment
Fort McClellan, Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

Task Order CK14
Contract No. DACA21-96-D-0018
IT Project No. 805593

March 2000

Revision 1

Table of Contents

List of Acronyms

AA	atomic absorption
DOD	U.S. Department of Defense
EPA	U.S. Environmental Protection Agency
FTMC	Fort McClellan
HUD	U.S. Department of Housing and Urban Development
IT	IT Corporation
LBP	lead-based paint
$\mu g/ft^2$	micrograms per square foot
NLLAP	National Lead Laboratory Accreditation Program
PCS	performance characteristic sheet
ppm	parts per million
SHP	installation-wide safety and health plan
USACE	U.S. Army Corps of Engineers
XRF	x-ray fluorescence

1.0 Introduction and Site Description

1.1 Objectives

The U.S. Army Corps of Engineers (USACE), Mobile District, has retained IT Corporation (IT) to perform Lead-Based Paint (LBP) surveys, LBP risk assessments and composite surface soil sampling for lead at multiple buildings located on Fort McClellan (FTMC), Alabama. Of approximately 1,100 units, 173 units have had an X-ray fluorescence (XRF) LBP survey. Fifty-nine of the one hundred seventy-three units are scheduled for demolition. The remaining one hundred fourteen units will require a LBP risk assessment. Eighty-eight units, which were not originally surveyed for LBP, will require an XRF survey. The work will be performed in accordance with the December 1999 Department of Defense and Environmental Protection Agency Interim Final document titled "Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property – A Field Guide" (December 1999 Field Guide) (EPA/DOD, 1999). The December 1999 Field Guide requires that a LBP risk assessment be performed within 12 months of the date of transfer. In addition to the Field Guide, work will also be performed in accordance with the February 2000 Statement of Work for Task Order CK14. The government is planning to transfer this property by June 2000. Therefore, the final reports must be completed and submitted to the USACE by June 2000. This work plan provides details of the procedures and analytical methods to be used to successfully perform the LBP surveys, LBP risk assessments and composite surface soil sampling for lead. This work plan also summarizes the health and safety procedures required by IT to complete the assessment which will be followed in conjunction with the IT installation-wide safety and health plan (SHP). This work plan document was written and all work will be performed in accordance with EM-200-1-3 (USACE, 1999). The procedures outlined in this plan include the following tasks:

- Lead-based paint XRF surveys
- Lead-bead paint risk assessments
- Composite surface soil sampling for lead

Health and Safety procedures have been established following an analysis of potential hazards at the site. Specific hazard control methodologies have been evaluated and selected in an effort to minimize the potential of accident or injury. All individuals who will be on-site will be trained and certified to meet the requirements of this work plan and the IT Installation-Wide Safety and Health Plan.

1.2 Site Description

A lead-based paint survey, lead-based paint risk assessment and composite surface soil sampling for lead investigation will be performed at Fort McClellan, Alabama. The lead-based paint survey consists of XRF sampling in 88 units. The lead-based paint risk assessment consists of dust wipe sample collection in 202 units. The composite surface soil sampling for lead will be performed at the drip line and midyard of buildings #57, #3133, #3134 and #3136.

Field work will take place in the following Housing Projects: Buckner Housing, Baltzell Housing, Drennen Housing, Avery Housing, Lillibrant Housing, Baker Housing and Morton Housing. Field work will start in the Baker Housing Project.

2.0 Field Sampling Plan

2.1 Lead-Based Paint Survey

IT and its licensed State of Alabama Lead-Based Paint Consulting Firm will perform facility-wide lead-based paint survey in 88 units located in buildings #57, #3133, #3134, and #3136 by the USACE. Individual licensed State of Alabama Lead-Based Paint Inspectors will perform the survey. The survey will be performed using an XRF unit. The individual using the XRF will also be licensed by the manufacturer. The XRF will be calibrated in accordance with the instrument's performance characteristic sheet (PCS) and the U.S. Department of Housing and Urban Development (HUD) guidelines.

Prior to performing the survey, the inspection team will review any past documents or surveys to determine a painting history. For each unit, a minimum of 3 XRF shots will be collected for each component. Combination testing can be performed if the Lead-Based Paint Inspector determines that the components and painting history are homogeneous in any one unit (like components with similar paint color and condition). The areas to be inspected will include all rooms in each unit and common areas that were accessible to all occupants. Exterior components will also be tested.

For each component tested, color, substrate, location, component type and condition will be recorded. If the XRF has the capability, depth index will also be recorded. A depth index will indicate if the lead-based paint is deeply buried or on the surface. An index greater than 8.0 indicates deeply buried lead. Both XRF "L-Shell" and "K-Shell" readings will be recorded and

presented in the final report. Photographs of positive lead-based paint components will be collected.

Lead-based paint, as defined by the HUD, is paint that contains at least 1.0 milligrams per square centimeter of lead or greater. For those XRF samples that are inconclusive, IT will collect one chip sample for laboratory analysis.

The lead-based paint survey will also be performed in accordance with the U.S. Department of Defense (DOD) and United States Environmental Protection Agency (EPA), December 1999 Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property – A Field Guide.

Laboratory Analysis. Analysis for chip samples will be performed by Atomic Absorption (AA) analysis. Analytical results for chip samples greater than 5,000 mg/kg is considered lead containing. A laboratory recognized by EPA under the National Lead Laboratory Accreditation Program (NLLAP) will analyze all paint chip samples collected.

2.2 Lead-Based Paint Risk Assessment

Risk assessments are being performed to determine the presence or absence of lead-based paint hazards and suggest appropriate hazard control measures. (HUD Guidelines, Chapter 5). IT and its licensed State of Alabama Lead-Base Paint Consulting Firm will perform facility-wide lead-based paint risk assessments in 202 units pre-determined by the USACE. Individuals licensed by the State of Alabama as Lead-Based Paint Inspectors / Risk Assessors will perform the survey.

Prior to performing the survey, the inspection team will review any past documents or surveys to determine a painting history and to determine if a risk assessment is necessary. For each unit, the risk assessor will identify the existence, nature, severity, source and location of lead-based paint hazards. (HUD Guidelines, Chapter 5). The areas to be inspected for the risk assessment will include floors, window sills and window troughs/wells.

For each unit containing lead-based paint, dust wipe samples will be collected from floors, window sills and window troughs / wells. Composite dust wipe samples will be collected per component per unit. An attempt will be made to collect wipe samples from "common areas". More than two subsamples will be collected from each type of surface, not to exceed 10 subsamples.

Dust wipe samples will be collected with commercially available, non-alcohol containing, and non-aloe containing baby wipes. The risk assessor will wear disposable latex gloves. When applicable, a measured area will be wiped in an S-pattern, the wipe will be folded inward, then the area will be wiped again in an opposite S-pattern. The dust wipe is then folded inward again and placed into a centrifuge tube. The surface area of each wipe will be recorded to accurately convert analytical results into micrograms per square foot ($\mu g/ ft^2$). Each composite sample location point will be indicated on a facility drawing. Composite sample points will be marked with a red paint pen or equivalent. Each sample will be given a unique sample identification number. The sample prefix will be similar to the following:

FTMC – 3700 / 1A – 0327 – W001

The prefix "FTMC" means Fort McClellan. The prefix "3700 / 1A" refers to building number 3700, unit number 1A. The prefix "0327" refers to the date the sample was collected, March 27. The prefix "W001" refers to wipe sample number 001.

Lead-based paint hazard criteria in dust, as defined in the Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property – A Field Guide (EPA/DOD, 1999), is greater than or equal to 40 ug / ft^2 on carpeted and uncarpeted interior floors and greater than or equal to 250 $\mu g/ft^2$ on interior window sills. As per the HUD Guidelines, The lead-based paint hazard criteria in dust for window troughs/wells is greater than or equal to 800 $\mu g/ft^2$.

Laboratory Analysis. Analysis of dust wipe samples will be performed by AA analysis. Analytical results for dust wipes will be compared to the numbers listed above to determine what is considered lead containing. All dust wipe samples will be analyzed by a laboratory recognized by the EPA under the NLLAP.

2.3 Composite Surface Soil Sampling for Lead

In accordance with the December 1999 Field Guide and the February 2000 Statement of Work for Task Order CK14, IT will perform lead-in-soil sampling from buildings #57, #3133, #3134 and #3136. IT will collect composite soil samples from the first ½ inch of soil from the dripline/foundation and the midyard areas where bare soil is present. IT will follow the HUD composite sampling procedures outlined in Chapter 5 of the HUD Guidelines. Two composite samples will be collected from bare soil areas in the midyard and dripline respectively. Each composite sample will be made up of two or more subsamples but not to exceed 10 subsamples.

If a child's play area is identified, IT will collect separate composite samples of bare soil from this area. A bare soil area must exceed 9 square feet.

The arithmetic mean, or the average of the composite samples, will be used to define a yardwide average of soil lead concentrations. If the arithmetic mean of the composite samples is equal to or exceeds the hazard standard of 2,000 parts per million (ppm) in bare soils or 400 ppm in children's play areas, additional sampling will be performed to define the extent of soil requiring abatement.

All composite sample locations will be marked with yellow pin flags or equivalent. Composite sample location points will be marked on a plot plan and will be included in the final report. All surface soil sampling will be performed using hand tools. Equipment will be decontaminated between locations. Each sample will be given a unique sample identification number. The sample prefix will be similar to the following:

FTMC – 3700 – 0327 – SDL001

The prefix "FTMC" means Fort McClellan. The prefix "3700" refers to building number 3700. The prefix "0327" refers to the date the sample was collected, March 27. The prefix "SDL001" refers to soil sample, dripline, number 001. Other soil samples will end with the prefix "SMY001" and "SCP001", which refer to soil sample, midyard, number 001 and soil sample, children's playground, number 001.

Sampling will be performed in accordance with the Site-Specific Field Sampling Plan and the Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property – A Field Guide.

2.4 Investigation-Derived Waste Management

IT does not expect much investigation-derived waste (IDW) to be generated during the lead-based paint field sampling. Any IDW generated will be disposed of in accordance with the installation-wide waste management plan (Appendix D of the SAP [IT, 1998]).

2.5 Health and Safety and Certifications

Health and safety requirements for this FSP are provided in the site-specific health and safety plan (SSHP) attachment for the lead-based paint risk assessment. The SSHP attachment will be used in conjunction with the installation-wide SHP.

The lead-based paint survey, lead-based paint risk assessment and composite surface soil sampling for lead will be performed in Level D personal protective equipment. All personnel will wear safety glasses, hard hats, steel-toed safety boots and coveralls or work clothing. During the collection of dust wipe samples and soil samples, the inspectors will wear disposable latex gloves. Respiratory protection will not be necessary during this investigation.

All other health and safety issues will be addressed by the Site Safety and Health Officer at the initial job-site meeting.

A tailgate safety meeting will be held daily prior to the commencement of field work.

The field sampling team is currently being assembled. When the team is in place, certifications of training will be gathered and sent to the appropriate persons. All certifications will be available on-site at the start of field work.

2.6 Final Report

Once the lead-based paint survey, lead-based paint risk assessment and composite surface soil sampling for lead are completed and analytical results are received, IT will prepare a draft report. This report will include sampling methodologies, analytical results in color tabular form for each task, including conclusions and recommendations. Draft and Final Reports will be prepared in accordance with the February 2000 Statement of Work For Task Order No. CK14.

3.0 Reference

IT Corporation (IT), 1998, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama,*** August.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling And Analysis Plans***, Engineering Manual EM200-1-3, September 1 and its updates.

U.S. Army Corps of Engineers (USACE), 2000, ***Statement of Work For Task Order No. CK14, Lead-Based Paint Risk Assessments, Fort McClellan, Alabama***, February.

U.S. Environmental Protection Agency (EPA) and Department of Defense (EPA/EOD), 1999, ***Lead-Based Paint Guidelines for Disposal of Department of Defense Residential Real Property – A Field Guide. Interim Final***, December.

Final
Site-Specific Safety and Health Plan Attachment For Lead-Based Paint Risk Assessment

Fort McClellan
Calhoun County, Alabama
EPA ID No. AL7 210 020 562

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

Delivery Order CK14
Contract No. DACA21-96-D-0018
IT Project No. 805593

March 2000

Revision 1

This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

Site-Specific Safety and Health Plan Attachment Approval
Fort McClellan, Calhoun County, Alabama

I have read and approve this site-specific safety and health plan attachment for the Lead-Based Paint risk assessment at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.

Jeanne Yacoub, PE
Project Manager

3/24/00
Date

Michael Henderson, CIH
Health & Safety Manager

3/24/2000
Date

Jeff Tarr
Site Coordinator

3/24/00
Date

Acknowledgements

The final approved version of this site-specific safety and health plan (SSHP) attachment for the Lead-Based Paint risk assessment at Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.

3/24/00

Project Manager | Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and/or the health and safety manager.

3/24/00

Site Coordinator | Date

Site-Specific Safety and Health Plan
Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in, this site-specific safety and health plan attachment for the activities for the Lead-Based Paint risk assessment at Fort McClellan, Calhoun County, Alabama.

Printed Name	***Signature***	***Representing***	***Date***

Fort McClellan Gate Hours

Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.

Fort McClellan Project Emergency Contacts

Fire Department (on post)	911
Fire Department (off post)	(256) 257-3541
Ambulance (off post)	911
Regional Medical Center	(256) 235-5121
Military Police (SSG Busch)	(256) 848-5680, 848-4824
DOD Guard Force (Mr. Bolton)	(256) 848-5680, 848-4732
Anniston Police Department	(256) 238-1800
Chemical Agent Emergencies	(256) 820-7272
(Hank Hubbard, Huntsville COE UXO EODT)	cell phone (205) 994-2254 or 994-2269
UXO Emergencies	(256) 820-7272
(Hank Hubbard, Huntsville COE UXO EODT)	cell phone (205) 994-2254 or 994-2269
UXO Nonemergencies/Reporting Only (Ronald Levy)	(256) 848-3758
Baltzell Gate Guard Shack (Staffed 1600-0700 hours, Mon-Sun)	(256) 848-5693, 848-3821
National Response Center & Terrorist Hotline	(800) 424-8802
Poison Control Center	(800) 462-0800
EPA Region IV	(404) 562-8725
Ronald Levy, Chief, FTMC Environmental Management	(256) 848-3758
Ellis Pope, U.S. Army Corps of Engineers	(334) 690-3077
Jeanne Yacoub, IT Project Manager	(770) 663-1429
Michael Henderson, IT H&S Manager	(865) 690-3211
Mike Moore, Fort McClellan Safety Office	(256) 848-5433
Dr. Elaine Theriault, IT Occupational Physician	(800) 229-3674

Table of Contents

Page

List of Tables

List of Figures

List of Acronyms

BZ	breathing zone
FTMC	Fort McClellan
IT	IT Corporation
LBP	lead-based paint
PPE	personal protective equipment
SHP	installation-wide safety and health plan
SSHO	site safety and health officer
SSHP	site-specific safety and health plan
USACE	U.S. Army Corps of Engineers
XRF	x-ray fluorescence

1.0 Site Work Plan Summary

Project Objective. The objective of this investigation at Fort McClellan (FTMC), Calhoun County, Alabama is to perform lead-based paint (LBP) surveys, composite surface soil sampling for lead, and LBP risk assessment at multiple buildings.

Project Tasks

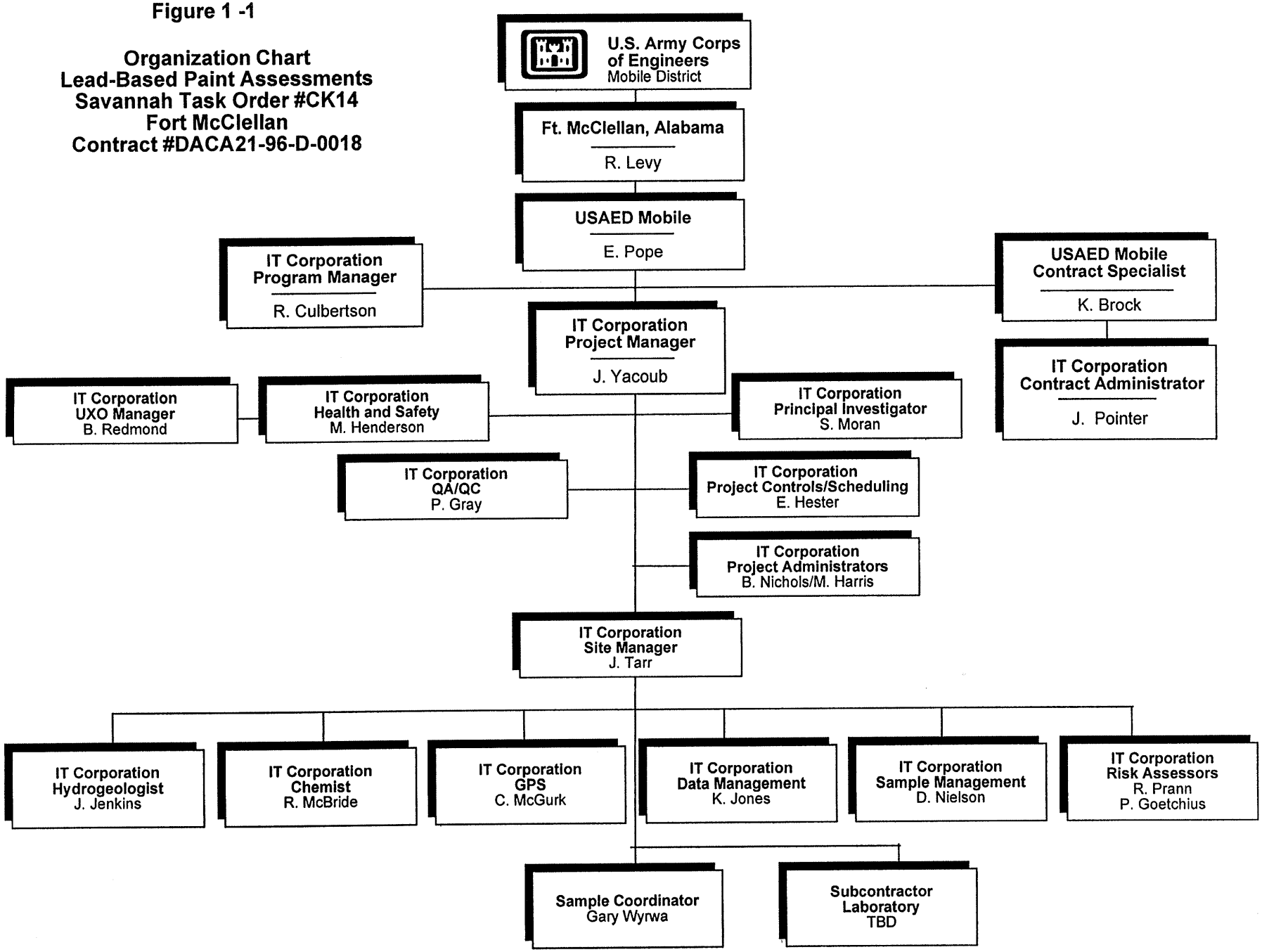
- Conduct LBP survey using an x-ray fluorescence (XRF) analyzer or obtaining paint chip samples.
- Collect surface soil samples.
- Conduct LBP risk assessments through the collection of wipe samples.

Personnel Requirements. Up to 10 employees. See Figure 1-1 for an organization chart.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC, and be familiar with the requirements of this site-specific SHP (SSHP). This SSHP must be used in conjunction with the SHP, FTMC, Alabama.

Figure 1 -1

Organization Chart
Lead-Based Paint Assessments
Savannah Task Order #CK14
Fort McClellan
Contract #DACA21-96-D-0018



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2.0 Site Characterization and Analysis

2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE).

The site locations and their history of use is described in the LBP risk assessment work plan.

Table 2-1 contains the toxicological and physiological properties of chemicals anticipated or to be used during the LBP risk assessment. The contaminant of concern at the areas is lead.

2.2 General Site Information

Duration of Planned Employee Activity. Employee activity duration is 1 month.

Pathways for Hazardous Substance Dispersion. Possible pathways for hazardous substances in the area are paint and soils.

Table 2-1

Toxicological and Physical Properties of Chemicals
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Acetone [67-64-1]	9.7	13–100	Inh Ing Con	Irritated eyes, nose, and throat; headache, dizziness; dermatitis.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	750 ppm 750 ppm 250 ppm	1,000 ppm 1,000 ppm	PEL TLV REL	20,000 ppm
Fuel oil (diesel oil, medium)	?	?	Ing Inh Con	Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; broncho-pneumonia; excited, then depressed, central nervous system.	Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical attention			PEL TLV REL	
Gasoline [8006-61-9]	?	0.3	Inh Ing Con	Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.	Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	300 ppm 300 ppm Ca, lowest feasible conc. (LOQ 15 ppm)	500 ppm 500 ppm	PEL TLV REL	?
n-Hexane [110-54-3]	10.18	65–248	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	50 ppm 50 ppm 50 ppm		PEL TLV REL	5,000 ppm
Isopropyl alcohol (isopropanol) [67-63-0]	10.16	43–200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsiness, dizziness, head-ache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	500 ppm 500 ppm 500 ppm	PEL TLV REL	12,000 ppm

Table 2-1

Toxicological and Physical Properties of Chemicals
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Lead [7439-92-1]	NA	NA	Inh Ing Con	Weak, insomnia, facial pallor, constipated, abdominal pain, colic, anemia, irritated eyes, paralysis of wrists and ankles, encephalopathy.	Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	0.05 mg/m 0.05 mg/m 0.1 mg/m		PEL TLV REL	100 mg/m
Methyl ethyl ketone [78-93-9]	9.54	2-85	Inh Ing Con	Irritated eyes and nose; headache, dizziness; vomiting.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Fresh air Swallow: Immediate medical attention	200 ppm 200 ppm 200 ppm	300 ppm 300 ppm	PEL TLV REL	3,000 ppm
Motor Oil [NA]	?	?	Inh Ing	Irritated eyes, skin, respiratory system; usually only a problem if misted or ingested.	Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention		500 ppm 500 ppm 500 ppm	PEL TLV REL	
Nitric acid [7697-37-2]	11.95	0.3-1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	100 ppm
Portland cement			Inh	Fine gray powder that can be irritating if inhaled or in eyes.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention		10 mg/m^3 10 mg/m^3/ total dust 5 mg/m^3 respirable fraction	TLV PEL/ REL	
Sodium hydroxide [1310-73-2]	NA	NA	Inh Ing Con	Irritated nose; pneumonitis; burns eyes, and skin; temporary loss of hair.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention		C2 mg/m^3 C2 mg/m^3 C2 mg/m^3	PEL TLV REL	250 mg/m^3
Sulfuric acid [7664-93-9]	?	0.15	Inh Ing Con	Irritated eyes, nose, and throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatitis; dental erosion; tracheobronchitis; skin and eye burns; dermatitis.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	1 mg/m^3 1 mg/m^3 1 mg/m^3	3 mg/m^3	PEL TLV REL	80 mg/m^3

Table 2-1

Toxicological and Physical Properties of Chemicals
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

[a]IP = Ionization potential (electron volts).
[b]Route = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.
[c]TWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.
[d]STEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.
[e]PEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).
AEL = Airborne Exposure Limit.
TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value—TWA.
REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.
[f]IDLH (NIOSH)—Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. 1998).
C = Ceiling limit value which should not be exceeded at any time.
Ca = Carcinogen.
NA = Not applicable.
? = Unknown.
LEL = Lower explosive limits.
LC_{50} = Lethal concentration for 50 percent of population tested.
LD_{50} = Lethal dose for 50 percent of population tested.
NIC = Notice of intended change (ACGIH).

References:

American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.
Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.
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Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.
Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.
Verschuseren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.
Warning Properties of Industrial Chemicals—Occupational Health Resource Center, Oregon Lung Association.
Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Staging equipment	Level D
Collecting samples	Level D
Conducting LBP Survey	Level D

Level D. The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

4.0 Site Monitoring

The environmental contaminant of concern resulting during the LBP risk assessment is lead. Because airborne emissions should be minimal during survey and sampling activities, real time air monitoring will not be performed.

5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Set up equipment and perform general field activities.
- Conduct LBP survey.
- Conduct LBP risk assessment.
- Collect surface soil samples.

All injuries and illnesses must be immediately reported to the site manager or the SSHO, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 1-2.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Staging equipment	Slip, trip, and fall hazards	• Determine best access route before transporting equipment. • Practice good housekeeping; keep work area picked up and clean as feasible. • Continually inspect the work area for slip, trip, and fall hazards. • Look before you step; ensure safe and secure footing.
	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Flying debris, dirt, dust, etc.	• Wear safety glasses/goggles; ensure that eye wash is in proper working condition.
	Cuts/bruises	• Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	• Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	• Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellant. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Fire	• Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Contact with moving equipment/vehicles	• Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow.
	Hazard communication	• Label all containers as to contents and dispose of properly. • Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.
	Lighting	• Adequate lighting will be provided to ensure a safe working environment.
	Heat rash	• Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Staging equipment (continued)	Heat cramps	• Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature) • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	• Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Contact with moving equipment/vehicles	• Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow. • Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic.
	Portable electric tools	• Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. • Portable electric tools and all cord and plug connected equipment shall be protected by a ground fault circuit interrupter (GFCI) device. • Electrical tools shall be inspected daily prior to use.
	Extension cords	• Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. • Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. • Cords shall be suspended with a nonconductive support (rope, plastic ties, etc,). • Cords shall be designed for hard duty. • Cords shall be inspected daily.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Staging equipment (continued)	Lightning strikes	• Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • Remain 6 feet away from tree trunk if seeking shelter beneath tree(s). • If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	• Listen to radio or TV announcements for pending weather information. • Cease field activities during thunderstorm or tornado warnings. • Seek shelter. Do not try to outrun a tornado.
Surveying	Slip, trip, fall	• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. • Provide adequate lighting in all work areas. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls. • Work areas will be kept clean and orderly. • Garbage and trash will be disposed of daily in approved refuse containers. • Tools and accessories will be properly maintained and stored. • Work areas and floors will be kept free of dirt, grease, and slippery materials.
	Traffic accidents	• Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians. • If working adjacent to roadways, have workers wear fluorescent orange vests. • Use warning signs or lights to alert oncoming traffic. • Assign flag person(s) if necessary to direct local traffic. • Set up temporary parking locations outside the immediate work area. • Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. • Pedestrians have the right-of-way. • Wear seat belts when vehicles are in motion.
	Biological hazards	• Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Ticks	• Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellant. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
Conduct LBP Survey	Faulty or damaged equipment being utilized to perform work	• All machinery or mechanized equipment will be inspected by a competent mechanic and be certified to be in safe operating condition. • Equipment will be inspected before being put to use and at the beginning of each shift. • Faulty/unsafe equipment will be tagged and if possible locked out. • Drill rigs shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
	Cross-contamination and contact with potentially contaminated materials	• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Avoid skin contact with paint. • Handle samples with care. • Only essential personnel will be in the work area. • All personnel will follow good hygiene practices.. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Inexperienced operator	• The XRF analyzer shall be operated only by designated, trained personnel.
	Falling objects	• Remove unsecured tools and materials before raising or lowering ladders. • Stay alert and clear of personnel working on ladders.
	Fall hazards	• Personnel will work on ladders in accordance wit IT policy HS 302, Ladder Safety (1/21/99). • Use fall protection when working above 6 feet.
	Flying debris, dirt, dust, etc.	• Wear ventilated goggles when obtaining point chip samples.
	Lacerations	• West leather work glove over sampling gloves when obtaining paint chip samples.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Conduct LPB survey (continued)	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.
	Slip, trip, and fall hazards	• Practice good housekeeping; keep work area picked up and clean as feasible. • Continually inspect the work area for slip, trip, and fall hazards.
	Contact with radiation	• Only trained operators will use the XRF analyzer. • Ensure that there are no personnel on the other side of the structure wall when using the XRF analyzer to sample for lead.
LBP risk assessment	Cross-contamination and contact with potentially contaminated materials	• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Avoid skin contact with paint and dust. • Handle samples with care. • Only essential personnel will be in the work area. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.
	Hazard communication	• MSDSs shall be obtained for chemicals brought on site. • Label all containers as to contents.
	Strains/sprains	• Use the proper tool for the job being performed. • Get assistance if needed. • Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	• Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	• Adequate lighting will be provided to ensure a safe working environment.
	Unattended worker	• Use "buddy system" - visual contact will be maintained with the sampling technician during sampling activities.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Surface Soil Sampling	Cross-contamination and contact with potentially contaminated materials	• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.
	Slip, trip, fall	• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	• Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. • Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.
	Access/egress hazards	• Utilize good housekeeping practices. • Keep aisleways, pathways, and work areas free of obstruction. • Use appropriate footwear for the task assigned.
	Heat rash	• Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	• Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.

Table 5-1

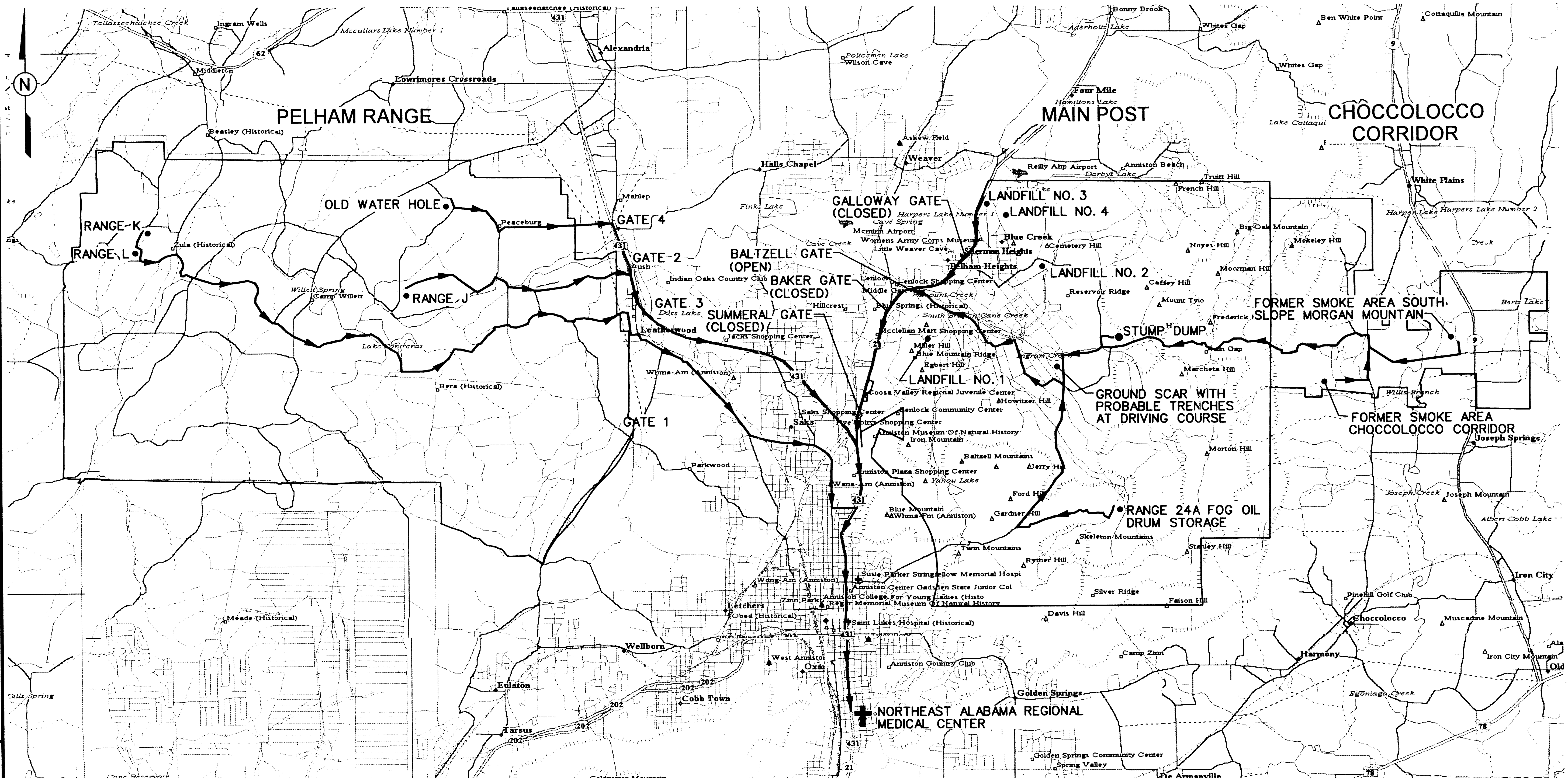
Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Surface Soil Sampling (continued)	Heat exhaustion	• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature) • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	• Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Lightning strikes	• Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	• Listen to radio or TV announcements for pending weather information. • Cease field activities during thunderstorms or tornado warnings. • Seek shelter. Do not try to outrun a tornado.
	Faulty or damaged equipment being utilized to perform work	• All machinery or mechanized equipment will be inspected by a competent mechanic and be certified to be in safe operating condition. • Equipment will be inspected before being put to use and at the beginning of each shift. • Faulty/unsafe equipment will be tagged and if possible locked out. • Drill rigs and geoprobes shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
Moving and shipping collected samples	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.

Table 5-1

Activity Hazard Analysis
Lead-Based Paint Risk Assessment
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Moving and shipping collected samples (continued)	Pinch points	• Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cut hazards	• Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	• Label all containers as to contents and associated
	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.
Material storage	Flammable and combustible liquids	• Store in NO SMOKING AREA. • Fire extinguisher readily available. • Transfer only when properly grounded and bonded.
Disposal of investigation-derived waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	• Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	•• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • All personnel will follow good hygiene practices. •• Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.



LEGEND:

- ROUTE TO NORTHEAST ALABAMA REGIONAL MEDICAL CENTER
- 431 U.S. HIGHWAY
- HOSPITALS
- INVESTIGATION SITES

SCALE

0 8000 16000 FEET

FIGURE 1-2
HOSPITAL EMERGENCY ROUTES

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

IT CORPORATION
A Member of The IT Group

STARTING DATE: 8/26/98 | DATE LAST REV.: | DRAFT. CHCK. BY: | INITIATOR: A. MAYILA | DWG. NO.: ...\774645es.284
DRAWN BY: D. BILLINGSLEY | DRAWN BY: | ENGR. CHCK. BY: A. MAYILA | PROJ. MGR.: J. YACOUB | PROJ. NO.: 774645

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